Some Guidelines for Use of the Tick Test Kit and Evaluation of Results

Most people cannot identify the species of tick that has bitten them. You CANNOT determine the species of a tick by its size because ALL ticks are extremely tiny in their immature stages, and then get progressively larger as they progress through their life cycle. In addition, you CANNOT tell if a tick is infected by looking at it.

Our Tick Test Kit program provides information about ticks that have been removed from tick-bite patients, to include identification of tick species, relative engorgement level, and infection status. This information is useful for the following reasons:

1. Tick species: Different tick species only transmit certain pathogens, or groups of pathogens. Therefore, knowing the species involved in the tick bite incident alerts the patient/physician to watch for specific disease(s), and may aid in differential diagnosis if clinical symptoms are present.

2. Relative engorgement level: If a tick is infected, it may transmit that infection when it bites an individual. However, transmission does NOT happen immediately. The tick must be attached for at least several hours in order to effectively transmit pathogens. In the case of Rocky Mountain spotted fever, infection may take place in as little as 6 hours, and in the case of Lyme disease, 24 - 48 hours is usually required; however, there is no EXACT time frame for any pathogen. Engorgement level (flat or unengorged, partly engorged, fully engorged) is simply a relative indication of attachment duration. The longer a tick is attached, the more engorged it becomes, and the longer an **infected** tick is attached, the greater the risk that transmission will take place. So, risk increases with engorgement level.

3. Infection status:

a. Ticks can ONLY transmit infection if they bite (attach to) a person. Ticks found just crawling on a person's skin or clothing cannot have transmitted infection, unless the tick appears to be fully engorged. A fully engorged tick indicates that the tick has just fed to repletion (completed its blood meal). In this rare or unlikely scenario, the tick would have been feeding on the person for several days, becoming fully engorged in the process, then detached and been immediately located by the individual before falling off. The Tick Test Kit program is designed to identify and test only those ticks that were actually attached to a person, because they are the only ticks that present a health risk. Submitting unattached ticks, therefore, is generally not justified unless there are extenuating circumstances, such as in the example just stated above.

b. If a tick is analyzed and found to be negative for a particular pathogen, the person cannot have acquired infection from that tick. If the tick is positive, the **potential** for infection to have taken place is increased, **but not confirmed**. We analyze both live and dead ticks. Analytical results are most reliable for live tick specimens. Once the tick dies, its cells begin to break down and pathogen DNA, if it is present, may begin to degrade. The longer a tick is dead, and the poorer the condition of the tick (e.g. moldy, burned, etc.), the greater the chance for a false negative analytical result. However, we have a high degree of confidence in analytical results for a dead tick that we receive within a reasonable period of time following removal and that appears to be in fairly good condition.

Additional facts to keep in mind when evaluating the results of the Tick Test Kit:

1. Tick Test Kit results do NOT represent human diagnosis; they merely provide additional information that may facilitate evaluation of the patient and may assist the physician in making diagnostic/treatment decisions.

2. Identification and analysis of the submitted tick do not rule out the possibility that the individual may have had other undetected tick bites. **Actual clinical symptoms in an individual should never be discounted based on Tick Test Kit results**.

3. Regardless of the species, engorgement level, and infection status of a tick, **prevailing philosophy in the reputable medical literature is that antibiotic therapy is generally not indicated unless there are supporting clinical symptoms**. The decision to administer antibiotics for a tick bite victim should be made by the physician on a case-by-case basis, after full evaluation of, and discussion with, the patient. Certain circumstances might justify prophylactic treatment, such as removal of a fully engorged, infected tick from a pregnant female. High infection rates in local tick populations, a high reported incidence of tick-borne disease in the area, underlying medical conditions of the patient, and even level of patient anxiety are also factors that might contribute to decisions to administer prophylactic therapy in some cases.

4. In the absence of symptoms, blood tests immediately following a tick bite are unproductive, as antibody titers or pathogen populations (IF infection did indeed take place) have not yet had enough time to develop to levels sufficient for measurement or detection.

5. It is important that telephonic results of identification and analysis be provided immediately to the patient's health care professional (e.g. physician) for his/her evaluation. Once CHPPM Form 321-R is mailed back to the clinic from CHPPM with the official written results of identification and analysis, it is very important that the form, along with the accompanying transmittal letter discussing the results, be provided to the physician, and that the **form and transmittal letter be placed in the individual's medical file for future reference, even if the results of analysis are negative.** We do not test ticks for every possible known pathogen (e.g. the deer tick is also a vector for the agent of babesiosis, a malaria-like illness), and specific tick species may eventually be found to harbor as yet unidentified or 'emerging' pathogens. CHPPM Form 321-R serves as the record of a tick bite and is an important aspect of the patient's medical record.

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